[002] This application is a national stage completion of PCT/EP2003/009104 filed August 18, 2003 which claims priority from German Application Serial No. 102 38 127.5 filed August 21, 2002.

[003] FIELD OF THE INVENTION

[004] The invention concerns a method for controlling the drivetrain in a vehicle~~,~~ ~~of the type defined in more detail in the preamble of claim 1~~.

[005] BACKGROUND OF THE INVENTION

[014] ~~According to the invention this objective is achieved by a method according to the characteristics of claim 1.~~

[015] SUMMARY OF THE INVENTION

[020] BRIEF DESCRIPTION OF THE DRAWINGS

[021] ~~Other advantages and advantageous further developments of the invention emerge from the claims and from the example embodiments whose principle is described below~~ The invention will now be described, by way of example, with reference to the ~~drawing,~~ accompanying drawings in which ~~shows~~:

[027] Fig. 6 is a rotation ~~speed-speed~~ speed-time diagram with several variations that correspond to the torque variations shown in Fig. 5;

[033] DETAILED DESCRIPTION OF THE INVENTION

[046] A shift between the individual speeds "III-H", "IV", "V", "VI", "VII" and "VIII" of the multi-range transmission 4 takes place in each case by changing the ratio of the automatic transmission 8, which preferably takes place in accordance with a specified or selected shifting program, for example, a program stored in the control unit of the multi-range transmission [[24]] 4 or of the automatic transmission 8.

[054] In this, it is significant that thanks to an appropriate progression in the automatic transmission 8 and the range transfer box 9, the ratios of the gear-steps "III-L" and "III-H" of the multi-range transmission 4 are approximately equal. Like all the other gear-steps of the multi-range transmission 4, so too the steps "III-L" and "III-H" are set by a particular combination of the ratios of the automatic transmission [[4]] 8 and the range transfer box 9. In step "III-L" of the multi-range transmission 4, the ratio "A3" is engaged in the automatic transmission 8 and, at the same time, the "low" range is engaged in the range transfer box 9. In contrast, in step "III-H" of the multi-range transmission 4 the ratio "A1" is engaged in the automatic transmission 8 and the "high" range is engaged in the range transfer box 9.

[075] This means that the annular gear wheel [[23]] 22 of the range transfer box 9 is released from the transmission housing 20A of the range transfer box 9 and is then able to turn. From that time onwards, the speed n_22 of the annular gear wheel 22 of the range transfer box 9 increases slowly toward the speed n_23 of the planetary gear support 23 of the range transfer box 9.

[088] The advantages of the procedure that when the ratio of the range transfer box 9 is changed a corresponding counter-shift takes place in the automatic transmission 8 without any change of the vehicle speed v_fzg, are made clear in Fig. [[8]] 9 by the arrows 28 and 29. When the range in the range transfer box 9 is changed from "low" to "high" while the ratio "A6" is engaged in the automatic transmission 8, if a counter-shift takes place in the automatic transmission 8 to ratio "A3", a connection speed of the engine 2 for the new gear-step of the multi-range transmission differs from the engine speed n_mot in the initial ratio "A6L" of the multi-range transmission 4 considerably less than would be the case without the counter-shift in the automatic transmission 8.

[089] The connection speed n_mot of the drive engine 2 which would exist without a corresponding counter-shift in the automatic transmission 8, is shown by the other arrow 29 in Fig. [[8]] 9. This large speed change is disadvantageous for the driving behavior, since the equalization time during

which the speed of the engine is adjusted to the new speed or connection speed, is much longer than with smaller speed differences. The disadvantage arises from the fact that, during this equalization time, the drivetrain is not under load and the shift causes a traction force interruption which, in some circumstances, can make it impossible to drive any further on steep slopes.

[094] The drive speed n_mot of the engine 2 can be equalized with the connection speed n_mot_a substantially more quickly by the procedure described above, than would be the case if adjustment were effected via the E-Gas-Moment alone. Thus, in the present case, the engine 2 is preferably braked by increasing the transmitting capability of the shift elements of the automatic transmission [[9]] 8 to be engaged. The shift elements of the automatic transmission 8 to be engaged are operated in a so-termed slipping condition and brake the engine 2 to its corresponding connection speed in the shortest time. The shift elements of the automatic transmission to be engaged are actuated in such a manner that, via a controlled filling of the frictional shift elements, sufficient transmitting capability is provided.